

SPECIFICATION AMENDMENTS

Replace the paragraph beginning at page 1, line 9 with:

As a petroleum refining apparatus is operated, heavy oil contents, which are generated when petroleum is partly polymerized upon ~~heat~~ heating, and soil components, such as the sludge ~~occurring-produced~~ upon deterioration (or degradation) of metals in the inner wall of the apparatus (hereinafter collectively referred to as "soil components"), adhere to the inside of heat exchangers, pipes, heating furnaces, desalters, and the like (hereinafter collectively referred to as "petroleum refining apparatus") constituting the apparatus.

Replace the paragraph beginning at page 1, line 18 with:

When such soil components accumulate within the petroleum refining apparatus, the petroleum refining efficiency may ~~lower. For preventing~~ be reduced. To prevent this from happening, the inside of the petroleum refining apparatus is periodically washed. ~~As the washing method therefor, while~~ While water washing with a jet of water has generally been widely ~~been used in general~~, methods in which an aqueous surfactant solution or a petroleum solvent is circulated within the petroleum refining apparatus for washing have recently been proposed as a method for shortening the washing time.

Replace the paragraph beginning at page 2, line 4 with:

The above-mentioned method using an aqueous surfactant solution, however, tends to require enormous labor and cost for processing a large amount of waste water ~~occurring upon washing~~. Also, its washing effects have not been proportionally efficient. In the above-mentioned method using a petroleum solvent, ~~on the other hand,~~ the petroleum solvent does not sufficiently infiltrate into soil components which have become bulky as a result of deposition. Therefore, sufficient washing effects have not always been available. Hence, none of these methods has been able to achieve fully satisfactory improvement of washing efficiency and ~~shortening~~ reduction of washing time.

Replace the paragraph beginning at page 3, line 2 with:

Namely, the present invention provides a detergent composition for petroleum refining apparatus, ~~which is used as being~~ mixed with a petroleum solvent when the inside of a petroleum refining apparatus is washed with the petroleum solvent in a nonaqueous system, the detergent composition containing a surfactant having a solubility of at least 10 with respect to a diesel fuel at a temperature of 25°C.

Replace the paragraph beginning at page 3, line 25 with:

Preferably, the detergent composition of the present invention further contains a terpene compound. The terpene compound is ~~a compound excellently good in~~ excellent at dissolving the heavy oil contents contained in soil components, and also is excellent in compatibility with the surfactant. As a consequence, the soil components are fully dissolved into the detergent composition itself, and the surface activity of the surfactant is fully exhibited. Therefore, the washing efficiency is further improved.

Replace the paragraph beginning at page 5, line 19 with:

In the present invention, "diesel fuel" as a solvent for defining the solubility of surfactant is "type-I diesel fuel" defined by the Japanese Industrial Standard JIS K 2204 (1997) "Diesel fuel". On the other hand, "solubility" of the surfactant with respect to the diesel fuel in the present invention is a value expressing, in terms of grams, the limit at which the surfactant transparently dissolves in 100 g of the diesel fuel. Further, "light oil" in the present invention refers to, in petroleum distillates, light and medium distillates other than so-called heavy distillates (A to C heavy oils, residual oil), e.g., such as kerosene, gas oil, and LCO (Light Cycle Oil), which are petroleum distillates having a boiling point of 100 to 330°C.

Replace the paragraph beginning at page 6, line 15 with:

In the following, preferred embodiments of the present invention will be explained. The detergent composition of the present invention contains a surfactant having a solubility of at least 10 with respect to a diesel fuel at a temperature of 25°C, and is ~~used as being~~ mixed with a petroleum solvent when the inside of a petroleum refining apparatus is washed with the petroleum solvent in a nonaqueous system.

Replace the paragraph beginning at page 6, line 23 with:

The petroleum solvent may be any petroleum solvent as long as it can dissolve or disperse soil components, and a light oil can preferably be used, for example. If the above-mentioned solubility of the surfactant is less than 10, then it tends to be harder to become fully compatible with the petroleum solvent, such as light oil, in particular. In this case, there is a tendency that the dissolution of soil components into the light oil or the dispersion of the solidified sludge and the like contained in the soil components into the light oil is not effected favorably.

Replace the paragraph beginning on page 12, line 25 with:

If the amount ~~of use (ratio of addition)~~ of the detergent composition is less than 0.5% by weight, then it becomes harder for the petroleum solvent to sufficiently infiltrate into soil components, and there is a tendency that the dissolution and dispersion of the petroleum solvent into the soil components are not fully enhanced. If the amount ~~of use~~ exceeds 20% by weight, on the other hand, then the washing efficiency tends to be substantially saturated though being somewhat enhanced, whereby washing effects matching the cost or higher may not be obtained.

Replace the paragraph beginning on page 13, line 9 with:

An example of the method (procedure) of washing the petroleum refining apparatus ~~by use of the detergent composition~~ in accordance with the present invention is ~~a procedure~~ as follows. First, a petroleum solvent is put into a mixing bath, and the detergent composition of the present invention is added to the mixing bath so as to attain a predetermined concentration range. Subsequently, these are mixed well, so that the detergent composition is dissolved in the petroleum solvent (the resulting mixed liquid also becoming the detergent composition of the present invention if the amount of addition of the detergent composition is within the preferable range mentioned above). The petroleum solvent containing the detergent composition is further heated, and then is injected into the petroleum refining apparatus to be washed. Thereafter, the petroleum solvent is circulated within the petroleum refining apparatus with a pump or the like.

Replace the paragraph beginning on page 14, line 17 with:

Also, since the surfactant is ~~excellently good~~ excellent in its solubility with respect to light oils such as kerosene, it can be mixed with the petroleum solvent very well, whereby the washing efficiency can be enhanced remarkably. As a consequence, the washing time can be ~~shortened~~ greatly reduced.

Replace the paragraph beginning on page 14, line 22 with:

If the detergent composition further contains a terpene compound, since the terpene compound is ~~excellently good in the capability of~~ excellent at dissolving the heavy oil contents and the like contained in soil components and also is excellent in ~~the~~ compatibility with the surfactant, the soil components can ~~fully be~~ fully dissolved into the detergent composition itself. Then, the surfactant can fully exhibit its surface activity. As a

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consequence, the washing efficiency can further be improved, whereby the washing time can be drastically be shortened.

Replace the paragraph beginning on page 15, line 22 with:

In addition, since the mixing ratio of the surfactant and terpene compound in the detergent composition is 5:95 to 80:20 in terms of weight ratio, the petroleum solvent can ~~further rapidly be infiltrated into~~ infiltrate the soil components. Also, the solvent activity of the detergent composition itself can be prevented from ~~lowering~~ decreasing due to the relative decrease in the amount of terpene compound. As a result, the solubility of the detergent composition with respect to the soil components and the surface activity of the surfactant can fully be exhibited. As a consequence, the washing efficiency can further be improved.